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16 December 1955

MEMORANDUM FOR THE RECORD

SUBJECT: Visit to [REDACTED]

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1. A visit was made by [REDACTED] Chief RSS, and [REDACTED] RSS Project Engineer, to the [REDACTED] plant and office, 7 - 8 December 1955, for the purpose of obtaining information relative to that firm's Model GPT-750 General Purpose Transmitter. It was desired to see and inspect the production prototype model of this transmitter and to obtain an estimate as to when this model would go into production.

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2. The following persons at [REDACTED] were seen and consulted:

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[REDACTED] Vice President, Sales  
[REDACTED] Senior Engineer  
[REDACTED] Engineer

3. The complete transmitter set consists of two units, the transmitter unit and the remote control unit.

4. The transmitter unit is enclosed in a steel case approximately 32 in. wide X 20 in. deep X 42 in. high; the case has a blue-gray crackle finish. The transmitter unit is made up of three sections, the RF section, the modulator, and the power supply. Each section has its own main chassis and panel and is drawer mounted on heavy-duty slides. Captive type bolts are used to secure each section to the case; heavy-duty handles on the panel of each section and slide stops facilitate removal of each section from the case. A rear cover plate on which two air filters are mounted completely encloses the back of the case. With the exception of the high voltage plate transformer, and a few minor parts, all components of the transmitter are within the three drawer mounted sections and are therefore easily accessible for inspection and maintenance. Interconnections between sections are made by cable and plug assemblies. Primary power is brought into the cabinet through a 3-wire twist lock receptacle in the rear of the cabinet. RF output is taken off from the cabinet through a side mounted SO-239 type coaxial connector; internally RF is supplied to this connector by means of large, silver plated contacts on the RF section chassis contacting plated-brass spring type contacts connected to the coaxial connector mounted in the side of the transmitter case. The RF section consists of a PMO type master oscillator, a crystal oscillator, multiplier stages, a buffer-amplifier, and a power-amplifier and a power-amplifier stage. Provisions are made for connection of external excitation through a miniature (Amphenol BNC) type connector. The modulator section consists of three-stage modulator and the power supply for the first two, driver, stages. The power supply section contains the high voltage supply for the RF and modulator sections plus low and medium plate and bias supplies for the RF section, power control switches, circuit breakers, overload and delay relays, and fuses.

5. The remote control unit, Model RTC, is enclosed in a steel cabinet approximately 10 in. high X 15 in. deep X 20 in. wide. This unit includes a speech amplifier and its power supply. An audio oscillator with three selectable tones is provided; this oscillator may be used for monitoring a keyed signal and/or as a tone generator for MCW operation. On the control unit panel are monitor and key jacks, an audio

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level meter, a stand-by operate switch, gain and clipping controls.

6. Major details of the [REDACTED] Model GPT-750 Transmitter:

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Primary Power: 115-230 V., Single phase, 50-60 cycles, approximately 3 Kw.

Frequency Range: 2-30 Mcs., in forty bands.

Carrier Output: 750 W. CW or FS, 2-20 Mcs.; 500 W. CW or FS, 20-30 Mcs.  
450 W. A3, 2-20 Mcs.; 300 W. A3, 20-30 Mcs.

Output Impedance: Unbalanced, 50-1000 ohms.

Frequency Selection: Manual

Tuning: All tuning from front panel.

Audio Input: Carbon microphone (Battery must be supplied externally); 600 ohm balanced.

Frequency Control: Master Oscillator; direct reading over range of oscillator.  
Crystal: Three crystal positions selectable from panel switch.

Tubes:

<u>RF Section</u>	<u>Modulator Section</u>	<u>Power Supply Section</u>
2 - 6AH6	1 - 5R4GY	2 - 5R4GY
1 - 6BE6	2 - 6L6	1 - 6X4
1 - 6BF5	1 - 12AT7	2 - 872A
2 - 604	2 - 810	2 - OB2
2 - 12AT7	1 - OA3	
3 - 12AU7		
2 - 4-250A		
1 - 6L46		
1 - OA2		

7. Major details of the [REDACTED] Model RTC Remote Control Unit:

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Primary Power: 115-230 V., Single phase, 50-60 cycles, 50 W.

Input Level: -50 db for full output.

Output Level: 0 Volts up to plus 6 dbm, continuously variable.

MCW Output: Three Tones, selectable (500, 1000, 1500 cps)

Tubes:

1 - 5Y3      2 - 12AT7      1 - 12AU7      1 - 12AX7

8. Operation of the transmitter and remote control unit was demonstrated and explained by [REDACTED]. The transmitter output was fed into a dummy load which was loaded up to approximately one kilowatt. Telephone and telegraph (CW and MCW) operation were checked. [REDACTED] pointed out that wherever possible similar type tubes, transformers, reactors, and other parts were utilized to ease logistics problems. The

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present design of the transmitter does not permit a keyed carrier during MCW operation, only the tone generator is keyed, therefore prohibiting one-frequency duplex operation. [REDACTED] stated that a small plug-in unit could be constructed which would permit keying the carrier as well as the modulator. This unit would contain the tone oscillator and a circuit for simultaneous keying of the carrier and the modulator; a CW-MCW switch would also be incorporated on the unit. Such a unit could be mounted (plug-in) on the modulator section chassis with minor modification to that chassis. The stage preceding the power amplifier stage acts as a straight-through amplifier. By the use of microswitches, in conjunction with the tap switch on the power amplifier plate inductance, plate voltage is removed from the tap switch before its contacts are opened during band-switching, and voltage to the switch is applied only after its contacts have again closed. Construction is rugged since this transmitter was designed for mobile as well as fixed use. Wiring, cabling, and general construction practices appear completely satisfactory. The unit inspected lacked tube clamps in one or two instances where they might be advisable. This was brought to the attention of Mr. [REDACTED] who said that clamps would be provided at those points if desired. Forced air ventilation is employed. An intake blower is installed to draw air into the lower rear of the cabinet; an exhaust blower is located on the RF deck immediately to the rear and above the power amplifier tubes. In the power supply section above the chassis, three terminal blocks are mounted in a row; from these blocks, readings can be taken of the output and input voltages from the bias, low and medium voltage supplies; all contacts on the plate relay and the power amplifier screen and plate overload relays are also terminated on these blocks.

9. Although this transmitter is not in production yet, [REDACTED] stated that 25X1A5a1 production should begin in early January, 1956. [REDACTED] also mentioned that 25X1A5a1 [REDACTED] will soon construct a building near the present plant, the new building will handle all [REDACTED] receiver and transmitter assembly.

10. Instruction manuals for the GPT-750 Transmitter have not been completed. Drawings of the transmitter and remote control unit were obtained, however.

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